**UNITED STATES DEPARTMENT OF COMMERCE**
**National Oceanic and Atmospheric Administration**
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

**Refer to:**
**2002/00248**

April 2, 2003

Mr. Lawrence C. Evans
U.S. Army Corps of Engineers
Attn: Kathryn L. Harris
Regulatory Branch, CENWP-OP-G
P.O. Box 2946
Portland, Oregon 97208-2946

Re: Endangered Species Act Formal Section 7 Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Oregon Episcopal School Marsh Enhancement Project, Fanno Creek, Tualatin River, Washington County, Oregon (Corps No. 200100029)

Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act that addresses the proposed Oregon Episcopal School Marsh Enhancement Project on Fanno Creek in the Tualatin River Basin, Washington County, Oregon. NOAA Fisheries concludes in this Opinion that the proposed action is not likely to jeopardize Upper Willamette River (UWR) steelhead (*Onchorynchus mykiss*). This Opinion includes reasonable and prudent measures with terms and conditions that are necessary and appropriate to minimize the potential for incidental take associated with this project.

This document also serves as consultation on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR Part 600. The Tualatin River and tributaries has been designated as EFH for chinook salmon (*O. tshawytscha*) and coho salmon (*O. kisutch*).

If you have any questions regarding this consultation please contact Ron Lindland of my staff in the Oregon Habitat Branch, at 503.231.2315.

Sincerely,

for Michael R Crouse

D. Robert Lohn
Regional Administrator

cc: Doug Gates, CWS

# Endangered Species Act - Section 7 Consultation
# Biological Opinion

# &

# Magnuson-Stevens Fishery Conservation and Management Act
# Essential Fish Habitat Consultation

Oregon Episcopal School Marsh Enhancement Project
Fanno Creek
Tualatin River Basin, Washington County, Oregon

| | |
|---|---|
| Agency: | Army Corps of Engineers, Portland District |
| Consultation Conducted By: | NOAA Fisheries,<br>Northwest Region |
| Date Issued: | April 2, 2003 |
| Issued by: | for Michael R Crouse<br>_____<br>D. Robert Lohn<br>Regional Administrator |
| **Refer to:** | **2002/00248** |

# 1. INTRODUCTION

## 1.1 Consultation History

On April 2, 2002, the NOAA's National Marine Fisheries Service (NOAA Fisheries) received a letter, brief project description, and drawings from the Corps of Engineers (COE) requesting informal Endangered Species Act (ESA) consultation on the effects of the proposed Oregon Episcopal School (OES) Marsh Enhancement Project on Upper Willamette River (UWR) steelhead (*Oncorhyncus mykiss)*. The COE also requested Essential Fish Habitat (EFH) consultation under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) for coho salmon (*O. kisutch*). The COE determined in the April 2, 2002, letter that the proposed action is "not likely to adversely affect" (NLAA) UWR steelhead or coho salmon. After reviewing the information submitted on the proposed project, NOAA Fisheries responded with a letter dated June 13, 2002, indicating that NOAA Fisheries did not concur with the finding of NLAA and would begin formal consultation. NOAA Fisheries' nonconcurrence was based on the potential for rearing, juvenile UWR steelhead to be present in Fanno Creek in the project area during proposed construction activities; and on the magnitude of excavation and fill activities proposed. On December 27, 2002, NOAA Fisheries received a letter and December 5, 2002, biological assessment (BA) from the COE requesting formal ESA consultation and MSA consultation on the proposed project.

NOAA Fisheries listed UWR steelhead as threatened under the ESA on March 25, 1999 (64 FR 14517). NOAA Fisheries issued protective regulations for UWR steelhead under section 4(d) of the ESA on July 10, 2000 (65 FR 42422).

The objective of this Opinion is to determine whether implementing the OES Marsh Enhancement Project is likely to jeopardize the continued existence of UWR steelhead.

The objective of the EFH consultation is to determine whether the proposed action may adversely affect designated EFH for coho salmon and chinook salmon, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

## 1.2 Proposed Action

The applicant, Clean Water Services (CWS), proposes to implement the OES Marsh Enhancement Project. The project is located near River Mile (RM) 12.5 on Fanno Creek in Section 13 of Township 1 South, Range 1 West in Beaverton, Washington County, Oregon. Fanno Creek is a tributary to the Tualatin River. To facilitate description of the proposed action, the project area has been divided into five sites. To complete the proposed stream modifications and enhancements, a total of approximately 1,700 cubic yards of fill material, including gravel, rock, riprap, and large wood, will be placed below the ordinary high water mark of Fanno Creek. Approximately 10,000 cubic yards of material, including rock, gravel, sand, silt, clay, organics,

and miscellaneous debris will be removed. All streambank modifications will utilize bioengineering (willows embedded in soil lifts) and deformable streambank techniques (coir wraps). The project is proposed for construction in 2003. According to the BA, the project area will be monitored and maintained for a five year period after installation. Grasses, sedges, and rushes will be planted on disturbed areas immediately following the completion of construction activities. Willows in the bioengineered streambank sections will be planted during the streambank recontouring activities. The remaining trees, shrubs, and understory vegetation will be planted in mid-fall of 2003. Plants will be irrigated as necessary over a five year period to improve survival and growth.

At Site 1 (West), two exiting culverts (10 inches and 12 inches in diameter in an over/under configuration) at the outlet of the OES Marsh would be removed and replaced with a concrete, vertical slot weir. The slots in the concrete weir would be six inches wide. The OES Marsh outlet channel will be deepened by two feet and widened by three feet. In addition, adjacent uplands will be excavated to reconnect Fanno Creek with its floodplain. A total of 16 trees would be removed (felled or uprooted) at Site 1.

At Site 2 (Center-North), excavation in upland and wetland areas will reconnect the currently incised Fanno Creek stream channel with its floodplain. Gravel will be placed in Fanno Creek and in an adjacent excavated side channel. Placement of gravel is expected to create spawning areas for anadromous fish. A backwater alcove would be created in this area to provide off-channel refugia for fish. The side channel will be stabilized with overlapping root wads, and woody debris would be placed in the side channel. The streambank of Fanno Creek just upstream from the side channel will be stabilized with root wads toed into the bank.

At Site 3 (Center-South), some excavation will occur to deepen and widen existing swale areas. The existing vertical stream bank in the meander at this site would be recontoured, gravel added to the streambank toe and stream bed, and large wood keyed into the streambank. A total of 10 trees would be removed (felled or uprooted) at Site 3.

At Site 4 (East-North), two meanders will be created in Fanno Creek. Excavation will be done on the south side of the creek, where the creek makes a 160-degree bend from south to north. The inside of the bend (right bank) will be sloped back to a point bar form. Streambank slopes would be excavated to an approximate 4:1 (horizontal:vertical) slope with milder streambank slopes at the apex of the bend. Woody debris would be anchored upon the point bar to add roughness, and toe logs would be removed from the design to avoid channelizing the stream (March 11, 2003, e-mail from Doug Gates, CWS, to Anne Mullan, NOAA Fisheries). The March 11, 2003 e-mail also stated that a high flow connection into the marsh from upstream has been incorporated into the project design. Gravel will be placed in the stream channel to create riffles and spawning habitat. In the area just downstream from the Vermont Creek confluence with Fanno Creek which is currently a flume-like restriction (pinch point) in the stream channel, the streambank will be slightly recontoured, rocks and boulders (riprap) will be added to the streambed and the streambank, and woody debris will be placed in front of the existing wooden

retaining wall on the south bank. The slope of the existing stream channel is being lowered by removing previously placed riprap, in an effort to minimize the amount of riprap needed downstream. According to a December 9, 2002 letter from CWS to NOAA Fisheries, the proposed design (and use of riprap) at that site is the only way to achieve a no surface water elevation rise as required by Federal Emergency Management Agency (FEMA) regulations, while remaining within the current project scope.

At Site 5 (East-South), upland and wetland areas will be excavated. An existing historic oxbow would be deepened. Woody debris would be added to the deepened oxbow area and disturbed areas revegetated with native plant species.

Following is a summary of conservation measures that will be followed according to the BA:

- All in-stream work will be conducted during the Oregon Department of Fish and Wildlife (ODFW) preferred in-water work period (July 1- September 30)

- The limits of the construction easement will be clearly flagged and access beyond the flagged area will be prohibited.

- Construction access will be mostly from existing roadways. Some new access roads will be necessary. Access roads through sensitive areas will use an approved mat system. Areas of new access roads will be restored to pre-project conditions.

- All soil stockpiles will be covered with an impervious material when unattended or during a rain event. If stockpiles or other exposed soil is not covered, the contractor will construct erosion control facilities so that any runoff will be contained or filtered before entering the creek. All runoff will meet the turbidity standards established by the Oregon Department of Environmental Quality (ODEQ).

- Sediment fencing will be properly installed adjacent to wetlands or channels. The fence will remain and be maintained until vegetation is established. The contractor will remove the fence at the completion of the project or as directed by CWS.

- An Erosion Prevention and Sediment Control Plan will be developed by the contractor and approved by CWS prior to construction. Conventional erosion control methods such as silt fencing and straw bales will be used. Other measures such as jute or coir fabric will be used in specific locations.

- All fuel storage tanks will be located inside earthen berms with a 12-mil liner. Hazardous substances, chemical, fuels, and lubricating oils will not be stored within 100 feet of any stream or wetland. All equipment will have a spill containment kit on board.

- To prevent compaction of soils at each access point and along the construction corridor, the contractor will be required to use tracked equipment and keep all rubber tread vehicles off of wetland soils.

- No heavy equipment will be operated in an active flowing stream.

- All in-stream enhancement activities will be completed in the dry; the work zone will be isolated from the stream flow. Full cut off and diversion of flow (pumping) will be limited to the maximum extent practicable. Whenever possible, creek flows will be free flowing in the evening and on weekends.

- If pumping occurs, pump inlets will be screened with 3/32 inch mesh screen. Discharge from pumps will be into a discharge structure to reduce discharge velocity.

- All water that is pumped from any excavation will be filtered through an approved system before entering a creek, wetland, or storm system. All pumped effluent will meet the turbidity standards established by ODEQ.

- Water quality/turbidity monitoring will comply with ODEQ requirements. Turbidity will be monitored daily upstream and downstream from the construction activities.

- The upper 12 inches of the soil profile, not including non-native grasses, will be stockpiled separately from subsurface soils and replaced at the project's completion. These areas will be seeded with a specified native seed mix.

- Wetland and upland soils will be stockpiled separately and replaced into their appropriate locations

- Vegetation within the permanent and construction easements will be restored according to the restoration and enhancement plans presented in the Joint Permit Application to the COE and Oregon Division of State Lands (DSL).

# 2. ENDANGERED SPECIES ACT

## 2.1 Biological Opinion

### 2.1.1 Biological Information

The listing status and biological information for UWR steelhead are described in Busby *et al.* (1995) and Busby *et al.* (1996).

Fanno Creek provides spawning, rearing, and migratory habitat for both adult and juvenile life stages of UWR steelhead. Fish sampling investigations conducted by ODFW in Fanno Creek in 1994-95 and 1999-2000 found no rainbow (steelhead) trout in the stream reach in which the proposed project is located. However, juvenile rainbow (steelhead) were collected by ODFW in a reach of Fanno Creek upstream from the proposed project in 1999-2000.

Essential features of the adult spawning, juvenile rearing, and adult and juvenile migratory habitats for the species are substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions (50 CFR 226.212). The essential features that the proposed project may affect are safe passage conditions, substrate, water quality, cover/shelter, space, and riparian vegetation resulting from project activities.

### 2.1.2 Evaluating Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). In conducting analyses of habitat-altering actions under section 7 of the ESA, NOAA Fisheries uses the following steps of the consultation regulations combined with the Habitat Approach (NMFS 1999): (1) Consider the status and biological requirements of the species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species and whether the action is consistent with the available recovery strategy; (4) consider cumulative effects; and (5) determine whether the proposed action, in light of the above factors, is likely to appreciably reduce the likelihood of species survival in the wild or destroy or adversely modify critical habitat. In completing this step of the analysis, NOAA Fisheries determines whether the action under consultation, together with cumulative effects when added to the environmental baseline, is likely to jeopardize the ESA-listed species or result in the destruction or adverse modification of critical habitat. If either or both are found, NOAA Fisheries will identify reasonable and prudent alternatives for the action that avoid jeopardy or destruction or adverse modification of critical habitat.

### 2.1.3 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmonids is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with information considered in its decision to list UWR chinook salmon for ESA protection then considers new data available that are relevant to the determination.

The relevant biological requirements are those necessary for UWR steelhead to survive and recover to naturally-reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration and juvenile rearing. UWR steelhead survival in the wild depends upon the proper functioning of certain ecosystem processes, including habitat formation and maintenance. Restoring functional habitats depends largely on allowing natural processes to increase their ecological function, while removing adverse impacts of current practices. In conducting analyses of habitat-altering actions, NOAA Fisheries defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and applies a "habitat approach" to its analysis (NMFS 1999). The current status of UWR steelhead, based upon their risk of extinction, has not significantly improved since the species were listed.

### 2.1.4 Environmental Baseline

In step 2 of NOAA Fisheries' analysis, we evaluate the relevance of the environmental baseline in the action area to the species' current status. The environmental baseline is an analysis of the effects of past and ongoing human-caused and natural factors leading to the current status of the species or its habitat and ecosystem within the action area. The action area includes, "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02). The action area for this consultation, therefore, includes the streambed, streambanks, and riparian area of Fanno Creek from just upstream of the Vermont Creek-Fanno Creek confluence downstream to 300 feet downstream from the SW Nichol Road crossing.

According to the BA, the Fanno Creek watershed contains approximately 20,500 acres. Land use in the Fanno Creek watershed is predominantly residential (70%) with remaining uses being commercial (10%), industrial (10%), and open space (10%). The Fanno Creek watershed is the most highly urbanized in the Tualatin River Basin, with an average effective impervious cover of

21 percent. The ODEQ has designated Fanno Creek as "water quality limited" for total phosphorus, ammonia, temperature, *E. coli* bacteria, dissolved oxygen, and chlorophyll-a. Hydrology and natural stream geomorphology have been altered to function within a legacy of imposed infrastructure (Norris, 2001).

Environmental baseline conditions within the action area were evaluated for the subject action at the project level and watershed scales. This evaluation was based on the matrix of pathways and indicators (MPI) described in *Making Endangered Species Act Determinations of Effect for Individual or Groups of Actions at the Watershed Scale* (NMFS 1996). This method assesses the current condition of instream, riparian, and watershed factors that collectively provide properly functioning aquatic habitat essential for the survival and recovery of the species.

In that portion of Fanno Creek watershed in which the proposed project is located, none of the 16 habitat indicators for which data was available in the MPI rated were properly functioning. Four indicators (temperature, physical barriers, substrate, and riparian reserves) were rated as functioning "at risk". The other 12 indicators were not properly functioning.

#### 2.1.4.1 Project Area

The proposed OES Marsh Enhancement Project is located between SW Nichol Road and SW Olsen Road in Beaverton, Oregon in the upper third of the Fanno Creek watershed. The site is relatively flat, and substrate is predominantly clay (83%) which is common for low gradient stream reaches in the Tualatin River basin. Habitat types in the project stream reach were classified as 88% glide, 6.5% pool, and 4.1% riffle. Large woody debris is currently lacking at the project site. Sixty-five percent of the streambank in the project area is classified as eroding. Streambanks at several sites within the project area are currently vertical walls which are chronic sources of sediment to Fanno Creek.

### 2.1.5 Effects of Proposed Action

In step 3 of the jeopardy analysis, NOAA Fisheries evaluates the effects of the proposed action on listed fish and their habitat.

Juvenile UWR steelhead, may be present in the project area of Fanno Creek even during ODFW's preferred in-water work period between July 1 and September 30. If juvenile UWR steelhead are present, they may be affected by the proposed project due to: (1) Potential stranding of juvenile fish when in-water work areas are isolated prior to beginning construction activities; and, (2) potential increased turbidity in Fanno Creek in the project area and downstream as a result of construction activities.

If any UWR steelhead are present in the project area of Fanno Creek during construction, there could be some mortality associated with construction activities. Isolation of in-water work areas could cause stranding of fish in areas to be isolated. Direct mortality or injury of juvenile UWR

steelhead could also result from contact with material used to isolate work areas as it is being installed or from handling necessary to capture and release fish from the isolated areas. However, because of the timing of the work, it is expected that few, if any, juvenile UWR steelhead will be present in Fanno Creek in the project. The proposed OES Marsh Enhancement Project could require potential direct handling of listed salmonids during fish removal. The BA estimates the potential to capture and relocate up to 50 UWR steelhead juveniles during the work area isolation and fish rescue and salvage efforts that will occur during the proposed project. Assuming a 5% direct or delayed mortality rate from capture and relocation stress, fish salvage and removal could result in lethal take of up to 3 UWR steelhead juveniles.

Excavation and fill activities will disturb sediment which has the potential to increase turbidity in Fanno Creek at the project site and downstream. The turbidity increases are expected to be of short duration. These short-term increases in turbidity could result in temporarily reduced feeding efficiency for juvenile UWR steelhead in the project area and for a short distance downstream. Because instream work areas will be isolated from flowing water during construction work, sediment transport and resultant increases in stream turbidity are expected to be minimized.

Potential beneficial effects resulting from the proposed restoration project include: (1) Increased complexity of instream habitat in Fanno Creek resulting from placement of large woody debris; (2) improved streambank stability and decreased potential for erosion resulting from recontouring of existing vertical cut-banks; (3) decreased water temperature over time from improvement of riparian vegetation, stream shading, and creation of wetlands; (4) increased off-channel rearing and refuge habitat for UWR steelhead from creation of the side channel/alcove habitat; and, (5) elimination of a potential fish trap created by the existing, non-functional culverts at the marsh outlet by removing the culverts and replacing them with the concrete, slotted weir.

### 2.1.6 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as “those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." This is step 4 in NOAA Fisheries’ analysis process. Future Federal actions are being (or have been) reviewed through separate section 7 consultation processes. Therefore, these actions are not considered cumulative to the proposed action.

NOAA Fisheries is not aware of any specific future non-Federal activities within the proposed action area that would cause greater impacts to listed species than presently occurs. However, the development of structures and clearing of vegetation along Fanno Creek and its tributaries is likely to continue. NOAA Fisheries assumes that future private and state actions will continue at similar intensities as in recent years.

### 2.1.7 Conclusion

The final step in NOAA Fisheries' approach to determine jeopardy is to determine whether the proposed action is likely to appreciably reduce the likelihood of species survival or recovery in the wild. NOAA Fisheries has determined that, when the effects of the proposed OES Marsh Enhancement Project addressed in this Opinion are added to the environmental baseline and cumulative effects occurring in the action area, it is not likely to jeopardize the continued existence of UWR steelhead. NOAA Fisheries used the best available scientific and commercial data to apply its jeopardy analysis, when analyzing the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. NOAA Fisheries believes that the proposed action would cause a short-term increase in turbidity in Fanno Creek in the project area. If juvenile UWR steelhead are present at the project site in Fanno Creek during construction activities, some direct or delayed mortality could result from stranding during isolation of work areas or from direct contact with construction equipment. The level of direct mortality is expected to be minimal and would not result in jeopardy. In the long term, survival and safe passage conditions for juvenile UWR steelhead will be improved.

These conclusions are based on the following considerations: (1) All in-water work will be completed within the ODFW preferred in-water work period between July 1 and September 30; (2) very few, if any, juvenile UWR steelhead are expected to be present in the project areas of Fanno Creek during the in-water work period; (3) downstream movement of sediment into Fanno Creek from construction activities is expected to be minimal because areas where excavation or fill activities occur will be isolated from flowing water; (4) streambank areas disturbed by project activities will be mulched and planted with native grasses, shrubs, and trees; (5) complexity of rearing habitat for UWR steelhead in Fanno Creek is expected to be increased as a result of placement of large woody debris; (6) streambank stability is expected to be improved and the potential for erosion decreased as a result of recontouring of existing vertical cut-banks; (7) planting of riparian vegetation and creation of wetlands are expected to reduce water temperatures in the project area of Fanno Creek over time; and, (8) creation of the side channel/alcove habitat will provide additional off-channel rearing and refuge habitat for UWR steelhead.

### 2.1.9 Reinitiation of Consultation

Reinitiation of consultation is required if: (1) The action is modified in a way that causes an effect on the listed species that was not previously considered in the BA and this Opinion; (2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or, (3) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR. 402.16).

## 2.2 Incidental Take Statement

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. "Harass" is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. "Incidental take" is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

### 2.2.1 Amount or Extent of the Take

NOAA Fisheries anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of UWR steelhead because of detrimental effects from increased sediment levels (non-lethal), increased pollutant levels (potentially lethal), limited riparian habitat disturbance (non-lethal), and the potential for direct incidental take during isolation of in-water work areas (non-lethal and lethal). Based on the expected low numbers of juvenile UWR steelhead in Fanno Creek at the OES Marsh Enhancement Project site at the time in-water work is conducted, the potential for take is low. Handling of juvenile steelhead during the work area isolation process and transfer of fish back to Fanno Creek may result in incidental take of individuals if adequate water quality allows juvenile salmonids to be present during the construction period. NOAA Fisheries anticipates non-lethal incidental take of up to 50 individuals, of which, lethal take of up to 3 juvenile steelhead could occur as a result of the fish rescue, salvage and relocation activities covered by this Opinion.

Effects of actions such as those covered by this Opinion are unquantifiable in the short term and are not expected to be measurable as long-term harm to habitat features or by long-term harm to salmonid behavior or population levels. Therefore, even though NOAA Fisheries expects some low level incidental take to occur due to the proposed action covered by this Opinion, best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate the specific amount of incidental take to the species itself. In instances such as these, NOAA Fisheries designates the expected level of take as "unquantifiable." Based on the information in the biological assessment and other information provided by the COE and CWS, NOAA

Fisheries anticipates that an unquantifiable amount of incidental take could occur as a result of the habitat altering actions covered by the Opinion. The extent of the take includes the aquatic and associated riparian habitats affected by the project.

### 2.2.2 Effect of Take

In this Opinion, NOAA Fisheries determines that this level of anticipated take is not likely to result in jeopardy to UWR steelhead.

### 2.2.3 Reasonable and Prudent Measures

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to avoid or minimize take of listed salmonid species resulting from the action covered in this Opinion. The COE shall include as part of the Section 10 River and Harbors Act and Section 404 Clean Water Act permits measures that will:

1. Minimize the likelihood of incidental take from construction activities by directing the contractor to minimize disturbance to riparian and aquatic systems.

2. Reduce loss of habitat value from tree removal by keeping downed trees on site and ensure success of revegetation by applying permit conditions to new plantings.

3. Complete a comprehensive monitoring and reporting program to ensure this Opinion is meeting its objective of minimizing the likelihood of take from permitted activities.

### 2.24 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the COE must require, as part of the Section 10 and Section 404 permits, that the applicant and/or their contractors comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement reasonable and prudent measure #1, the COE shall ensure that:

    a. Timing of in-water work. Work within the active channel will be completed during the ODFW (2000) preferred in-water work period[1] for Fanno Creek (July 1 and September 30), unless otherwise approved in writing by NOAA Fisheries.
    b. Cessation of work. Project operations will cease under high flow conditions that

[1] Oregon Department of Fish and Wildlife, *Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, 12 pp (June 2000) (identifying work periods with the least impact on fish) (http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600_inwtrguide.pdf).

may result in inundation of the project area, except for efforts to avoid or minimize resource damage.

c. Fish screens. All water intakes used for a project, including pumps used to isolate an in-water work area, will have a fish screen installed, operated and maintained according to NOAA Fisheries' fish screen criteria.[2]

d. Pollution and Erosion Control Plan. A Pollution and Erosion Control Plan will be prepared and carried out to prevent pollution related to construction operations. The plan must be available for inspection on request by COE or NOAA Fisheries.

i. Plan Contents. The Pollution and Erosion Control Plan must contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.

(1) Practices to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations and staging areas.

(2) Practices to confine, remove and dispose of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities.

(3) A description of any hazardous products or materials that will be used for the project, including procedures for inventory, storage, handling, and monitoring.

(4) A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.

(5) Practices to prevent construction debris from dropping into any stream or water body, and to remove any material that does drop with a minimum disturbance to the streambed and water quality.

ii. Inspection of erosion controls. During construction, all erosion controls must be inspected daily during the rainy season and weekly during the dry season to ensure they are working adequately.[3]

(1) If inspection shows that the erosion controls are ineffective, work crews must be mobilized immediately to make repairs, install replacements, or install additional controls as necessary.

(2) Sediment must be removed from erosion controls once it has reached 1/3 of the exposed height of the control.

---

[2] National Marine Fisheries Service, *Juvenile Fish Screen Criteria* (revised February 16, 1995) and *Addendum: Juvenile Fish Screen Criteria for Pump Intakes* (May 9, 1996) (guidelines and criteria for migrant fish passage facilities, and new pump intakes and existing inadequate pump intake screens) (http://www.nwr.noaa.gov/1hydrop/hydroweb/ferc.htm).

[3] "Working adequately" means no turbidity plumes are evident during any part of the year.

e. Construction discharge water. All discharge water created by construction (*e.g.*, concrete washout, pumping for work area isolation, vehicle wash water) will be treated as follows.

i. Water quality. Facilities must be designed, built and maintained to collect and treat all construction discharge water using the best available technology applicable to site conditions. The treatment must remove debris, nutrients, sediment, petroleum hydrocarbons, metals and other pollutants likely to be present.

ii. Discharge velocity. If construction discharge water is released using an outfall or diffuser port, velocities must not exceed 4-feet per second.

f. Preconstruction activity. Before significant[4] alteration of the project area, the following actions must be completed.

i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.

ii. Emergency erosion controls. Ensure that the following materials for emergency erosion control are onsite.

(1) A supply of sediment control materials (*e.g.*, silt fence, straw bales[5]).

(2) An oil absorbing floating boom whenever surface water is present.

iii. Temporary erosion controls. All temporary erosion controls must be in-place and appropriately installed downslope of project activity within the riparian area until site restoration is complete.

g. Temporary access roads.

i. Existing ways. Existing roadways or travel paths must be used whenever possible, unless construction of a new way would result in less habitat take.

ii. Steep slopes. Temporary roads built mid-slope or on slopes steeper than 30% are not authorized.

iii. Minimizing soil disturbance and compaction. When a new temporary road is necessary within 150-feet[6] of a stream, water body or wetland, soil disturbance and compaction must be minimized by clearing vegetation to

---

[4] "Significant" means an effect can be meaningfully measured, detected or evaluated.

[5] When available, certified weed-free straw or hay bales must be used to prevent introduction of noxious weeds.

[6] Distances from a stream or water body are measured horizontally from, and perpendicular to, the bankfull elevation, the edge of the channel migration zone, or the edge of any associated wetland, whichever is greater. "Channel migration zone" means the area defined by the lateral extent of likely movement along a stream reach as shown by evidence of active stream channel movement over the past 100 years, *e.g.*, alluvial fans or floodplains formed where the channel gradient decreases, the valley abruptly widens, or at the confluence of larger streams.

ground level and placing clean gravel over geotextile fabric, unless otherwise approved in writing by NOAA Fisheries.

iv. Temporary stream crossings.

(1) The number of temporary stream crossings must be minimized.

(2) Temporary road crossings must be designed as follows.

(a) A survey must identify and map any potential spawning habitat within 300-feet downstream of a proposed crossing.

(b) No stream crossing may occur at known or suspected spawning areas, or within 300-feet upstream of such areas if spawning areas may be affected.

(c) The crossing design must provide for foreseeable risks (*e.g.*, flooding and associated bedload and debris) to prevent the diversion of streamflow out of the channel and down the road if the crossing fails.

(d) Vehicles and machinery must cross riparian areas and streams at right angles to the main channel wherever possible.

v. Obliteration. When the project is completed, all temporary access roads must be obliterated, the soil must be stabilized, and the site must be revegetated. Temporary roads in wet or flooded areas must be abandoned and restored as necessary by the end of the in-water work period.

h. Heavy Equipment. Use of heavy equipment will be restricted as follows.

i. Choice of equipment. When heavy equipment must be used, the equipment selected must have the least adverse effects on the environment (*e.g.*, minimally sized, rubber tired).

ii. Vehicle staging. Vehicles must be fueled, operated, maintained and stored as follows.

(1) Vehicle staging, cleaning, maintenance, refueling, and fuel storage must take place in a vehicle staging area placed 150 feet or more from any stream, water body or wetland.

(2) All vehicles operated within 150 feet of any stream, water body or wetland must be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected must be repaired in the vehicle staging area before the vehicle resumes operation. Inspections must be documented in a record that is available for review on request by COE or NOAA Fisheries.

(3) All equipment operated instream must be cleaned before beginning operations below the bankfull elevation to remove all external oil, grease, dirt, and mud.

iii. Stationary power equipment. Stationary power equipment (*e.g.*, generators, cranes) operated within 150 feet of any stream, water body or wetland must be diapered to prevent leaks, unless otherwise approved in writing by NOAA Fisheries.

i. Site preparation. Native materials will be conserved for site restoration.
   i. If possible, native materials must be left where they are found.
   ii. Materials that are moved, damaged or destroyed must be replaced with a functional equivalent during site restoration.
   iii. Any large wood[7], native vegetation, weed-free topsoil, and native channel material displaced by construction must be stockpiled for use during site restoration.

j. Isolation of in-water work area. If adult or juvenile fish are reasonably certain to be present, the work area will be well isolated from the active flowing stream using inflatable bags, sandbags, sheet pilings, or similar materials. The work area will also be isolated if in-water work may occur within 300 feet upstream of spawning habitats.

k. Capture and release. Before and intermittently during pumping to isolate an in-water work area, an attempt must be made to capture and release fish from the isolated area using trapping, seining, electrofishing, or other methods as are prudent to minimize risk of injury.
   i. A fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish must conduct or supervise the entire capture and release operation.
   ii. If electrofishing equipment is used to capture fish, the capture team must comply with NOAA Fisheries' electrofishing guidelines.[8]
   iii. The capture team must handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during seining and transfer procedures to prevent the added stress of out-of-water handling.
   iv. Captured fish must be released as near as possible to capture sites.
   v. ESA-listed fish may not be transferred to anyone except NOAA Fisheries personnel, unless otherwise approved in writing by NOAA Fisheries.
   vi. Other Federal, state, and local permits necessary to conduct the capture and release activity must be obtained.
   vii. NOAA Fisheries or its designated representative must be allowed to accompany the capture team during the capture and release activity, and must be allowed to inspect the team's capture and release records and facilities.

l. Earthwork. Earthwork (including drilling, excavation, dredging, filling and compacting) will be completed as quickly as possible.

---

[7] For purposes of this Opinion only, "large wood" means a tree, log, or rootwad big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and otherwise support aquatic habitat function, given the slope and bankfull width of the stream in which the wood occurs. See, Oregon Department of Forestry and Oregon Department of Fish and Wildlife, *A Guide to Placing Large Wood in Streams*, May 1995 (www.odf.state.or.us/FP/RefLibrary/LargeWoodPlacemntGuide5-95.doc).

[8] National Marine Fisheries Service, *Backpack Electrofishing Guidelines* (December 1998) (http://www.nwr.noaa.gov/1salmon/salmesa/pubs/electrog.pdf).

i. Site stabilization. All disturbed areas must be stabilized, including obliteration of temporary roads, within 12 hours of any break in work unless construction will resume work within 7 days between June 1 and September 30, or within 2 days between October 1 and May 31.

ii. Source of materials. Boulders, rock, woody materials and other natural construction materials used for the project must be obtained outside the riparian area.

2. To implement reasonable and prudent measure #2, the COE shall ensure that:

a. Onsite large woody debris.

i. Any trees which are cut or uprooted on the project site will be placed on site either in Fanno Creek or in the riparian area where they will be recruited during flood events for habitat value.

b. Planting. Revegetation at the project sites is completed in the following manner.

i. All exposed soil surfaces, including construction access roads and associated staging areas, will be stabilized at finished grade with mulch, native herbaceous seeding, and native woody vegetation.

ii. Disturbed areas will be planted with native vegetation specific to the project vicinity or the region of the state where the project is located, and will comprise a diverse assemblage of woody and herbaceous species.

iii. Plantings will be arranged randomly within the revegetation area. Approximate placement of trees will specified before construction begins.

(1) If revegetation success has not been achieved after 3 years, the applicant will submit an alternative plan to the COE. The alternative plan will address temporal loss of function.

(2) Plant establishment monitoring will continue and plans will be submitted by the applicant to the COE until site restoration success has been achieved.

iv. No herbicide application will occur within 300 feet of any stream channel as part of this permitted action, unless approved in advance by a NOAA Fisheries biologist. Mechanical removal of undesired vegetation and root nodes is permitted.

v. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.

3. To implement reasonable and prudent measure #3, the COE shall ensure that:

a. Within 30 days of completing the project, the COE will submit a monitoring report to NOAA Fisheries describing the COE's success in meeting these terms and conditions. This report will consist of the following information.

i. Project identification.

(1) Project name;

(2) starting and ending dates of work completed for this project; and

(3) the name and address of the construction supervisor.

ii. Photographic documentation of environmental conditions at the project site before, during and after project completion.
    (1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre- and post-construction.
    (2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
    (3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

b. If a dead, injured, or sick endangered or threatened species specimen is located, initial notification must be made to the National Marine Fishery Service Law Enforcement Office, located at Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; telephone: 360/418-4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

d. Monitoring reports will be submitted to:

National Marine Fisheries Service
Oregon Habitat Branch
Attn: 2002/00248
525 NE Oregon Street
Portland, OR 97232

## 3. MAGNUSON-STEVENS ACT

### 3.1 Magnuson-Stevens Fishery Conservation and Management Act

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of EFH: "Waters"

include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reason for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

## 3.2 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O.gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

## 3.3 Proposed Action

The proposed action is detailed above in section 1.2 of this document. The action area for this consultation includes the streambed, streambanks, and riparian area of Fanno Creek from just upstream of the Vermont Creek-Fanno Creek confluence downstream to 300 feet downstream from the SW Nichol Road crossing. This area has been designated as EFH for various life stages of chinook salmon and coho salmon. Neither species are currently known to occur in the Fanno Creek drainage.

## 3.4 Effects of Proposed Action

As described in detail in the ESA portion of this consultation, the proposed activities would result in detrimental, short-term, adverse effects to a variety of habitat parameters.

## 3.5 Conclusion

NOAA Fisheries believes that the proposed action may temporarily adversely affect the EFH for chinook salmon and coho salmon.

## 3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. In addition to conservation measures proposed for the project by the COE, all of the reasonable and prudent measures and the terms and conditions contained in sections 2.2.3 and 2.2.4, respectively, of the ESA portion of this Opinion are applicable to salmon EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH conservation recommendations.

## 3.7 Statutory Response Requirement

The MSA (section 305(b)) and 50 CFR 600.920(j) requires the COE to provide a written response to NOAA Fisheries' EFH conservation recommendations within 30 days of its receipt of this letter. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. If the response is inconsistent with NOAA Fisheries' conservation recommendations, the COE shall explain its reasons for not following the recommendations.

## 3.8 Supplemental Consultation

The COE must reinitiate EFH consultation with NOAA Fisheries if either the action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

## 4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion in addition to the BA and additional information requested by NOAA Fisheries and provided by the COE.


Busby, P. S. Grabowski, R. Iwamoto, C. Mahnken, G. Matthews, M. Schiewe, T. Wainwright, R. Waples, J. Williams, C. Wingert, and R. Reisenbichler. 1995. Review of the status of steelhead (*Oncorhynchus mykiss*) from Washington, Idaho, Oregon, and California under the U.S. Endangered Species Act.

Busby, P., T.C. Wainwright, G.J. Bryant, L.J. Lierheimer, R.S. Waples, F.W. Waknitz, and I.V. Lagomarsino. 1996. Status review of west coast steelhead from Washington, Idaho, Oregon, and California. U.S. Department of Commerce, NOAA Technical Memo. NMFS-NWFSC-27.

NOAA Fisheries (National Marine Fisheries Service). 1996. Making Endangered Species Act Determinations of Effect for Individual or Groups of Actions at the Watershed Scale. NMFS Environmental and Technical Services Division. Portland, Oregon. August.

NOAA Fisheries (National Marine Fisheries Service). 1998. Backpack Electrofishing Guidelines. National Marine Fisheries Service, Northwest Region, Protected Resources Division, Portland, Oregon. December.

NOAA Fisheries (National Marine Fisheries Service). 1999. The Habitat Approach: Implementation ofSection 7 of the Endangered Species Act fo Actions Affecting the Habitat of Pacific Anadromous Salmonids. Guidance memorandum from Assistant Regional Administrators for Habitat Conservation and Protected Resources to staff. 3 pages. August. (Available @ www.nwr.noaa.gov , under Habitat Conservation Division, Habitat Guidance Documents).

Norris, W.P. 2001. OES Marsh Enhancement Hydraulics Report. Inter-Fluve, Inc. October.

ODF and ODFW (Oregon Department of Forestry and Oregon Department of Fish and Wildlife). 1995. A guide to placing large wood in streams. Oregon Department of Forestry, Salem, Oregon. May.

ODFW (Oregon Department of Fish and Wildlife). 2000. Guidelines for timing of in-water work to protect fish and wildlife resources. Oregon Department of Fish and Wildlife, Portland, Oregon. June.

PFMC (Pacific Fishery Management Council). 1999. Amendment 14 to the Pacific Coast Salmon Plan. Appendix A: Description and Identification of Essential Fish Habitat, Adverse Impacts and Recommended Conservation Measures for Salmon. Portland, Oregon.